

I claim:

1. An analyte chamber which can releasably attached to a portable calibration unit, comprising:
 - a wick;
 - 5 a liquid analyte absorbed in said wick;
 - a housing having an open end, wherein said wick is internally disposed within said housing;
 - a first layer disposed over and enclosing said open end;
 - headspace, wherein said headspace comprises the volume within said housing
 - 10 minus the volume of said wick;
 - gaseous analyte disposed in said headspace;
 - wherein said gaseous analyte is capable of passing through said first layer.
2. The analyte chamber of claim 1, wherein said analyte chamber cannot release said analyte in the liquid phase.
- 15 3. The analyte chamber of claim 1, further comprising a second layer disposed over said first layer, wherein said second layer comprises an orifice.
4. The analyte chamber of claim 3, wherein said orifice comprises a mechanical orifice.
5. The analyte chamber of claim 3, further comprising a plurality of
- 20 analytes disposed in said wick.
6. A portable calibration apparatus, comprising:
 - a positive pressure assembly capable of providing a fluid at a pressure greater than atmospheric pressure;
 - a fluid flow conduit connected to said positive pressure assembly;
 - 25 an analyte chamber disposed adjacent said fluid flow conduit, wherein said analyte chamber comprises a wick and a liquid analyte disposed in said wick, wherein said portable calibration apparatus cannot release said liquid analyte.
7. The portable calibration apparatus of claim 6, further comprising a detector connected to said fluid flow conduit.
- 30 8. The portable calibration apparatus of claim 6, wherein said analyte chamber further comprises:

a housing having an open end, wherein said wick and said analyte are internally disposed with said housing;

headspace, wherein said headspace comprises the volume within said housing minus the volume of said wick;

5 gaseous analyte disposed in said headspace;

a first layer disposed over and enclosing said open end, wherein said gaseous analyte is capable of passing through said first layer;

a second layer disposed over said first layer, wherein said second layer comprises a first orifice.

10 9. The portable calibration apparatus of claim 8, wherein said fluid conduit is formed to include a second orifice, and wherein said analyte chamber is releaseably attached to said fluid orifice such that said first orifice communicates with said second orifice.

15 10. The portable calibration apparatus of claim 9, further comprising:

a microprocessor; and

a first feedback circuit interconnecting said microprocessor and said positive pressure assembly.

20 11. The portable calibration apparatus of claim 10, wherein said fluid conduit comprises a first portion and a second portion, further comprising:

a valve interconnecting said first portion of said fluid conduit and said second portion of said fluid conduit;

a second feedback circuit interconnecting said microprocessor and said valve.

25 12. The portable calibration apparatus of claim 11, wherein said first orifice comprises an electromechanical orifice, further comprising a third feedback circuit interconnecting said microprocessor and said electromechanical orifice.

13. The portable calibration apparatus of claim 12, further comprising:
a heater, wherein said analyte chamber is capable of being removeably disposed in said heater;

30 a fourth feedback circuit interconnecting said microprocessor and said heater.

14. A method to calibrate a stationary gas detector, comprising the steps of:

providing a portable calibration apparatus comprising a portable detector and an analyte chamber comprising a wick;

disposing by capillary action a liquid analyte in said wick, such that all of said analyte is absorbed in said wick, and such that said wick cannot release said analyte in the liquid phase;

providing a concentration of said analyte in the gaseous phase to said portable detector;

measuring said concentration using said portable detector;

providing said gaseous analyte to said stationary detector;

calibrating said stationary detector using said concentration.

15. The method of claim 14, further comprising the steps of:

establishing (n) calibration levels;

setting (i) to 1;

providing the (i)th concentration of said gaseous analyte;

measuring said (i)th concentration using said portable detector;

providing said (i)th concentration of said gaseous analyte to said stationary detector;

calibrating said stationary detector using said (i)th concentration;

determining if (i) equals (n);

operative if (i) is less than (n), incrementing (i) and repeating said providing, measuring, calibrating, and determining steps;

operative if (i) equals (n), ending the calibration process.

16. The method of claim 14, wherein said detector further comprises a microprocessor, and wherein said portable calibration unit further comprises a positive pressure fluid assembly and a feedback circuit interconnecting said microprocessor and said positive pressure fluid assembly, said method further comprising the step of adjusting the fluid flow provided by said positive pressure fluid assembly.

17. The method of claim 14, wherein said analyte chamber further comprises a mechanical orifice, and wherein said portable calibration unit further comprises a feedback circuit interconnecting said microprocessor and said mechanical orifice, said method further comprising the step of adjusting said mechanical orifice.

18. The method of claim 14, wherein said portable calibration unit further comprises a heater and a feedback circuit interconnecting said microprocessor and said heater, wherein said analyte chamber can be removeably disposed in said heater, said method further comprising the step of adjusting the temperature of said heater.

5 19. An article of manufacture comprising a computer useable medium having computer readable program code disposed therein to adjust the available concentration of a gaseous analyte, wherein said article of manufacture comprises a portable detector, an analyte chamber comprising a wick and a liquid analyte disposed in said wick, and a positive pressure fluid assembly, wherein said article of
10 manufacture is capable of providing a concentration of said analyte in the gas phase to said portable detector, the computer readable program code comprising a series of computer readable program steps to effect:

measuring a first concentration of said gaseous analyte emitted from said wick;

15 adjusting the flow rate of fluid provided by said positive pressure fluid assembly;

measuring a second concentration of said gaseous analyte.

20 20. The article of manufacture of claim 19, wherein said analyte chamber further comprises a mechanical orifice, said computer readable program code further comprising a series of computer readable program steps to effect adjusting the size of said mechanical orifice.

21. The article of manufacture of claim 20, further comprising a heater, wherein said analyte chamber can be removeably disposed in said heater, said computer readable program code further comprising a series of computer readable
25 program steps to effect adjusting the temperature of said heater.